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# Th6e

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# APPEAL STAFF REPORT
# SUBSTANTIAL ISSUE DETERMINATION & DE NOVO HEARING

**Appeal number**.....**A-3-SCO-01-109, Adams Drilled Pier and Shotcrete Wall**

**Applicants**.....Keith Adams

**Appellants**.....Commissioners Sara Wan and Dave Potter

**Local government**.....Santa Cruz County

**Local decision**.....Approved with conditions (October 19, 2001)

**Project location**.....Coastal bluff seaward of 500 41st Avenue (APN 033-171-18) in the Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County.

**Project description**.....Drilled pier and shotcrete shoreline protection structure.

**File documents**.....Santa Cruz County Certified Local Coastal Program; Santa Cruz County Coastal Development Permit Application File 00-0757.

**Staff recommendation** ...**Substantial Issue Exists; Denial**

**Summary of staff recommendation:** This is the substantial issue determination and de novo hearing for appeal number A-3-SCO-01-109. Staff recommends that the Commission find that a substantial issue exists with respect to this project's conformance with the certified Santa Cruz County Local Coastal Program (LCP) and take jurisdiction over the coastal development permit for the project. **Staff subsequently recommends that the Commission deny the proposed project** because the residence proposed to be protected is not "significantly threatened" (as required by the LCP in order allow for the installation of shoreline protective devices), and there are a range of blufftop drainage and erosion control techniques available that would improve the stability of the bluff without an armoring project and its attendant negative impacts on coastal resources.

# Report Contents



# 1. Report Summary

Santa Cruz County approved a coastal permit to allow installation of a concrete-faced shoreline protective structure in two phases: phase one involves the immediate installation of an approximately 80 linear feet and 40 foot deep drilled pier wall system in the bluff; phase two, to commence when the drilled piers are exposed in the bluff face in the future, would involve facing the wall system with textured concrete. Thus, the one County approval ultimately allows for a textured concrete seawall on the bluff. The structure would be installed in the unincorporated Live Oak beach area of Santa Cruz County on the bluff seaward of the intersection of 41st Avenue and East Cliff/Opal Cliff Drives immediately adjacent to a County blufftop coastal accessway (locally known as "the Hook").

The Santa Cruz County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved, and the LCP requires 100 years of stability (without reliance on shoreline protective structures) for development.

The LCP only allows for shoreline protection structures "where necessary to protect existing structures from a significant threat." The LCP-required significant threat has not been clearly demonstrated in this case. The County's findings indicate that the home will be threatened by bluff retreat in the next 15 or 20 years. However, the geotechnical evidence indicates that the bluff itself is relatively stable and that it will be much longer than that until the residence is significantly threatened. At the identified long-term average rate of erosion (0.4 feet per year), the residence, which is currently setback a minimum of 24 feet from the blufftop edge, would still be expected to be set back a minimum of 20 feet from the blufftop's edge at the identified rate after another ten years; it would be 60 years at this rate until the blufftop's edge reached the residence itself. Although bluff retreat is episodic by nature, and more rapid bluff retreat may occur over part of this time interval, the best evidence to date indicates that the structure is not in significant, imminent threat from erosion.

Moreover, the LCP requires a "thorough analysis of all reasonable alternatives" when shoreline armoring is proposed and only allows for shoreline armoring measures "where non-structural measures are infeasible from an engineering standpoint or not economically viable." If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved. The facts of the case appear to indicate that some combination of vegetation treatment on the upper bluff terrace deposits combined with drainage improvement on the blufftop itself could serve to improve the stability of the bluff here. Given the moderate long-term erosion rate relative to the existing setback, dismissal of such alternatives is contrary to LCP shoreline structure policy direction.

The LCP requires that shoreline protective structures "be placed as close as possible to the development or structure requiring protection." If it were conclusively shown that there was a significant threat here, and if non-armoring alternatives were conclusively shown to be infeasible, the County-approved structure would be placed closer to the bluff edge than to the residence. In fact, the structure would be roughly 20 feet or more from the residence it is meant to protect.

In addition, the LCP requires a minimum of 100 years of stability without reliance on future shoreline protective structures. If the County-approved project were to be installed, the consulting engineers indicate that a separate seawall, with its own attendant impacts, would need to be installed at this location in roughly 20 years to protect the first shoreline protective structure. Not only is it unlikely that the LCP or the Coastal Act would allow for such shoreline armoring to protect other shoreline armoring, but additional armoring would be necessary within 22 years – well in advance of the LCP's minimum 100 year threshold.

Finally, were the other tests otherwise met to allow for armoring at this location, the LCP has multiple overlapping policies meant to result in appropriate design of allowable armoring projects to minimize and mitigate impacts to natural landforms, public viewsheds, and public access and recreational resources (including beach, offshore surfing, and blufftop access). These policies are complemented by Coastal Act access and recreation protective policies that likewise apply here. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. For example, the impacts of the County-approved project on shoreline sand supply processes and the "Hook" surfing access offshore have not been analyzed nor mitigated.

For the above reasons, a substantial issue exists with respect to this project's conformance with the certified LCP such that the Coastal Commission must take jurisdiction over the coastal development permit for the project.

In a Coastal Commission de novo review, the proposed project raises fundamental LCP conformance issues that cannot be easily rectified by conditions of approval. The LCP-required significant threat has not been demonstrated. The LCP-required infeasibility of non-armoring alternatives has not been demonstrated. The LCP-required shoreline structure placement is not as close as possible to the residence proposed for protection. The LCP-required 100 year stability test is not met. The LCP- and Coastal Act-required prevention of, and, if unavoidable, mitigation for, impacts to beach and offshore recreational access, public views, and landform alteration has not been assured. In sum, without a clear demonstration of significant threat, and in light of the negative resource impacts from armoring that are well known to the Commission, armoring at this location cannot be found consistent with the certified LCP and Coastal Act, and cannot be found consistent with the California Environmental Quality Act. For these reasons, the proposed project is denied.

# 2. Appeal of Santa Cruz County Decision

## A. Santa Cruz County Action

On October 19, 2001 the Santa Cruz County Zoning Administrator approved the proposed project subject to multiple conditions (see exhibit C for the County's staff report, findings and conditions on the project). Notice of the Zoning Administrator's action on the coastal development permit (CDP) was received in the Commission's Central Coast District Office on October 23, 2001. The Commission's ten-working day appeal period for this action began on October 24, 2001 and concluded at 5pm on November 6, 2001. One valid appeal (see below) was received during the appeal period.

## B. Appeal Procedures

Coastal Act Section 30603 provides for the appeal of approved coastal development permits in jurisdictions with certified local coastal programs for development that is (1) between the sea and the

first public road paralleling the sea or within 300 feet of the inland extent of any beach or of the mean high tideline of the sea where there is no beach, whichever is the greater distance; (2) on tidelands, submerged lands, public trust lands, within 100 feet of any wetland, estuary, or stream, or within 300 feet of the top of the seaward face of any coastal bluff; (3) in a sensitive coastal resource area; (4) for counties, not designated as the principal permitted use under the zoning ordinance or zoning district map; and (5) any action on a major public works project or energy facility. This project is appealable because it is seaward of the first public road at the bluff above the beach.

The grounds for appeal under Section 30603 are limited to allegations that the development does not conform to the standards set forth in the certified LCP or the public access policies of the Coastal Act. Section 30625(b) of the Coastal Act requires the Commission to conduct a de novo coastal development permit hearing on an appealed project unless a majority of the Commission finds that "no substantial issue" is raised by such allegations. If the Commission conducts a de novo hearing, then in order to approve a proposed development the Commission must find that the proposed development is in conformity with: (a) the certified local coastal program (Section 30604(b)); and (b) if the project is located between the nearest public road and the sea or the shoreline of any body of water located within the coastal zone, the public access and recreation policies of Chapter 3 of the Coastal Act (Section 30604(c)). This project is located between the nearest through public road (East Cliff/Opal Cliff Drive) and the sea and thus, the Section 30604(c) finding would need to be made in a de novo approval in this case.

The only persons qualified to testify before the Commission on the substantial issue question are the Applicant, persons who made their views known before the local government (or their representatives), and the local government. Testimony from other persons regarding substantial issue must be submitted in writing. Any person may testify during the de novo stage of an appeal.

## C. Appellant's Contentions

The two Commissioner Appellants contend that the County-approved project raises substantial issues with respect to the project's conformance with core LCP and Coastal Act policies, concluding as follows:

> *In sum, the County LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved, and the LCP requires 100 years of stability (without reliance on shoreline protective structures) for development.*
>
> *The County's approval is not consistent with the LCP in that the LCP-required significant threat has not been clearly demonstrated. The County's findings indicate that the home will be*

*threatened by bluff retreat in the next 15 or 20 years; the identified erosion rate shows that it may be much longer than that. If a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. It appears that the County approved project would require its own shoreline armoring in roughly 20 years though the LCP requires 100 years of stability.*

*As such, the proposed project's conformance with core LCP and Coastal Act policies is questionable. These issues warrant a further analysis and review by the Coastal Commission of the proposed project.*

Please see exhibit D for the Commissioner Appellants' complete appeal document.

# 3. Staff Recommendation

## A. Staff Recommendation on Substantial Issue

The staff recommends that the Commission determine that a **substantial issue** exists with respect to the grounds on which the appeal was filed. A finding of substantial issue would bring the project under the jurisdiction of the Commission for hearing and action.

***Motion.*** *I move that the Commission determine that Appeal Number A-3-SCO-01-109 raises* ***no*** *substantial issue with respect to the grounds on which the appeal has been filed under §30603 of the Coastal Act.*

***Staff Recommendation of Substantial Issue.*** *Staff recommends a* ***no*** *vote. Failure of this motion will result in a de novo hearing on the application, and adoption of the following resolution and findings. Passage of this motion will result in a finding of No Substantial Issue and the local action will become final and effective. The motion passes only by an affirmative vote of the majority of the appointed Commissioners present.*

***Resolution To Find Substantial Issue.*** *The Commission hereby finds that Appeal Number A-3-SCO-01-109 presents a substantial issue with respect to the grounds on which the appeal has been filed under §30603 of the Coastal Act regarding consistency with the Certified Local Coastal Program.*

## B. Staff Recommendation on Coastal Development Permit

The staff recommends that the Commission, after public hearing, **deny** a coastal development permit for the proposed development.

***Motion.*** *I move that the Commission approve Coastal Development Permit Number A-3-SCO-01-109 pursuant to the staff recommendation.*

***Staff Recommendation of Denial.*** *Staff recommends a* ***no*** *vote. Failure of this motion will result in denial of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.*

***Resolution To Deny The Permit.*** *The Commission hereby denies a coastal development permit for the proposed development on the grounds that the development will not conform with the policies of the Santa Cruz County Local Coastal Program, and that it is located between the sea and the first public road nearest the shoreline and it will not conform with the access and recreation policies of Chapter 3 of the Coastal Act. Approval of the permit would not comply with the California Environmental Quality Act because there are feasible mitigation measures or alternatives that would substantially lessen the significant adverse impacts of the development on the environment.*

# Recommended Findings and Declarations

The Commission finds and declares as follows:

# 4. Project Description

## A. Project Location

The proposed project is located at the terminus of 41st Avenue where it meets the shoreline in the Pleasure Point/Opal Cliffs region of the unincorporated Live Oak area of Santa Cruz County.

### Regional Setting

Situated on the northern shore of the Monterey Bay, Santa Cruz County is bordered to the north and south by San Mateo and Monterey Counties. Santa Cruz County is characterized by a wealth of natural resource systems ranging from mountains and forests to beaches and the Monterey Bay itself. The Bay has long been a focal point for area residents and visitors alike providing opportunities for surfers, fishermen, divers, marine researchers, kayakers, and boaters, among others. The unique grandeur of the region and its national significance was formally recognized in 1992 when the area offshore became part of the Monterey Bay National Marine Sanctuary – the largest of the 12 such federally protected marine sanctuaries in the nation.

Santa Cruz County's rugged mountain and coastal setting, its generally mild climate, and its well-honed cultural identity combine to make the area a desirable place to both live and visit. As a result, Santa Cruz County has seen extensive development and regional growth over the years since the California Coastal Management Program has been in place. In fact, Santa Cruz County's population has more than doubled since 1970 alone with current census estimates indicating that the County is currently home to over one-quarter of a million persons.[1] This level of growth not only increases the regional need for housing, jobs, roads, urban services, infrastructure, and community services, but also the need for parks and recreational areas. For coastal counties such as Santa Cruz where the vast majority of residents live within a half-hour of the coast, coastal recreational resources are a critical element in helping to meet these needs. Furthermore, with coastal parks and beaches themselves attracting visitors into the region, an even greater pressure is felt at coastal recreational systems such as that found in Live Oak. With Santa Cruz County beaches providing arguably the warmest and most accessible ocean waters in all of Northern California, and with the vast population centers of the San Francisco Bay area and the Silicon Valley nearby, this type of resource pressure is particularly evident in coastal Live Oak.

Live Oak is part of a larger area including the Cities of Santa Cruz and Capitola that is home to some of the best recreational beaches in the Monterey Bay area. Not only are north Monterey Bay weather patterns more conducive to beach recreation than the rest of the Monterey Bay area, but north bay beaches are generally the first beaches accessed by visitors coming from the north of Santa Cruz. With Highway 17 providing the primary access point from the north (including San Francisco and the Silicon Valley) into the Monterey Bay area, Santa Cruz, Live Oak, and Capitola are the first coastal areas that visitors encounter upon traversing the Santa Cruz Mountains. As such, the Live Oak beach area is an important coastal access asset for not only Santa Cruz County, but also the entire central and northern California region.

See exhibit A for project location information.

### Live Oak Beach Area

Live Oak represents the unincorporated segment of Santa Cruz County located between the City of Santa Cruz (upcoast) and the City of Capitola (downcoast). The Live Oak coastal area is well known for excellent public access opportunities for beach area residents, other Live Oak residents, other Santa Cruz County residents, and visitors to the area. Walking, biking, skating, viewing, surfing, fishing, sunbathing, and more are all among the range of recreational activities possible along the Live Oak shoreline. In addition, Live Oak also provides a number of different coastal environments including sandy beaches, rocky tidal areas, blufftop terraces, and coastal lagoons. These varied coastal characteristics make the Live Oak shoreline unique in that a relatively small area can provide different recreational users a diverse range of alternatives for enjoying the coast. By not being limited to one large, long beach, or solely an extended stretch of rocky shoreline, the Live Oak shoreline accommodates recreational users in a manner that is typical of a much larger access system.

[1] Census data from 1970 shows Santa Cruz County with 123,790 persons; California Department of Finance estimates for the 2000 census indicate that over 255,000 persons reside in Santa Cruz County.

Primarily residential with some concentrated commercial and industrial areas, Live Oak is a substantially urbanized area with few major undeveloped parcels remaining. Development pressure has been disproportionately intense for this section of Santa Cruz County. Because Live Oak is projected to absorb the majority of the unincorporated growth in Santa Cruz County, development pressure will likely continue to tax Live Oak's public infrastructure (e.g., streets, parks, beaches, etc.).[2] Given that the beaches are the largest public facility in Live Oak, this pressure will be particularly evident in the beach area.

### Proposed Development Site

The proposed project is located on the bluffs seaward of the intersection of 41st Avenue and East Cliff/Opal Cliff Drives; roughly the boundary point between the Pleasure Point (upcoast) and Opal Cliffs (downcoast) areas of Live Oak. The subject site is occupied by an existing two-story single-family residence on an oddly shaped parcel immediately adjacent to the County's blufftop coastal accessway (locally known as "the Hook") located to the west. The Hook coastal accessway park provides a developed parking lot and related coastal access facilities (restroom, shower, etc.), and a blufftop overlook with a Coastal Conservancy funded stairway oriented towards the highly used recreational surfing area offshore here. The subject residence begins a stretch of coastline extending to Capitola in which private residential properties occupy the blufftop area seaward of the first through public road (Opal Cliff Drive). The bluffs at the subject site as well as up and down coast are unarmored currently, and exist in a natural state.

See exhibit A for graphics showing the subject site in relation to the various features described above.

## B. County Approved Project

The County approved project consists of a concrete-faced shoreline protective structure that would be installed in 2 phases: phase one involves the immediate installation of an approximately 80 linear feet and 40 foot deep drilled pier wall system (14 piers set roughly 6 feet on center, connected by an at-grade 4 foot deep concrete whaler beam, and reinforced by twelve 50 foot tie-back rods) in the bluff with a 3½ foot railing atop; phase 2, to commence when the drilled piers are exposed in the future, involves facing the wall system with textured concrete.

The geotechnical record includes a geologic investigation (by Rogers Johnson and Associates, dated September 2000), and a geotechnical and coastal engineering investigation (by Haro, Kasunich & Associates Inc., dated October 2000).

See exhibit B for County-approved site plans. See exhibit C for the County staff report, findings, and conditions approving the Applicant's proposed project.

[2] The LCP identifies Live Oak at buildout with a population of approximately 29,850 persons; based on the County's recreational formulas, this corresponds to a park acreage of 150-180 acres. Though Live Oak accounts for less than 1% of Santa Cruz County's total acreage, this projected park acreage represents nearly 20% of the County's total projected park acreage.

# 5. Substantial Issue Findings

In general, the Commissioner Appellants raise issues with respect to the project's conformance with certified Santa Cruz County LCP policies regarding shoreline structures and their associated impacts.

Commissioner Appellants generally contend that it has not been clearly demonstrated that there is an existing structure that is significantly threatened as required by the LCP. If such a case could be clearly established, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed structure as close as possible to the structure to be protected. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. It appears that the County approved project would require its own shoreline armoring in roughly 20 years though the LCP requires 100 years of stability.

The Applicant has submitted their own response to the appeal (see exhibit E).

As summarized below, the appeal issues raise a substantial issue with respect to the project's conformance with the Santa Cruz County LCP.

## A. Allowing Shoreline Armoring

### 1. Applicable Policies

The LCP defines shoreline protection structures as follows:

> ***IP Section 16.10.040(3g) Shoreline protection structure.*** *Any structure or material, including but not limited to riprap or a seawall, placed in an area where coastal processes operate.*

The LCP addresses the use of shoreline protective structures primarily through LUP Policy 6.2.16 (Structural Shoreline Protection Measures) and IP Section 16.10.070(h)(3) (Coastal Bluffs and Beaches, Shoreline Protection Structures).

> ***LUP Policy 6.2.16 Structural Shoreline Protection Measures.*** *Limit structural shoreline protection measures to structures which protect existing structures from a significant threat, vacant lots which through lack of protection threaten adjacent developed lots, public works, public beaches, or coastal-dependent uses. Require any application for shoreline protective measures to include a thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure, protection of the upper bluff or area immediately adjacent to the threatened structure, and engineered shoreline protection such as beach nourishment, revetments, or vertical walls. Permit structural protection measures only if non-structural measures (e.g., building relocation or change in design) are infeasible from an engineering standpoint or not economically viable. The protection structure must not reduce or restrict public beach access, adversely affect shoreline processes and sand supply, increase*

*erosion on adjacent properties, or cause harmful impacts on wildlife and fish habitats or archeological or paleontological resources. The protection structure must be placed as close as possible to the development requiring protection and must be designed to minimize adverse impacts to recreation and to minimize visual intrusion. Shoreline protection structures shall be designed to meet approved engineering standards for the site as determined through the environmental review process. Detailed technical studies shall be required to accurately define the oceanographic conditions affecting the site. All shoreline protective structures shall incorporate permanent survey monuments for future use in establishing a survey monument network along the coast for use in monitoring seaward encroachment or slumping of revetments and erosion trends. No approval shall be given for shoreline protective structures that do not include permanent monitoring and maintenance programs. Such programs shall include a report to the County every five years or less, as determined by a qualified professional, after construction of the structure, detailing the condition of the structure and listing any recommended maintenance work. Maintenance programs shall be recorded and shall allow for County removal or repair of a shoreline protective structure, at the owner's expense, if its condition creates a public nuisance or if necessary to protect public health and safety.*

***IP Section 16.10.070(h)(3).*** *Shoreline protection structures shall be governed by the following:*

*(i) shoreline protection structures shall only be allowed on parcels where both adjacent parcels are already similarly protected, or where necessary to protect existing structures from a significant threat, or on vacant parcels which, through lack of protection threaten adjacent developed lots, or to protect public works, public beaches, and coastal dependent uses. Note: New shoreline protection structures shall not be allowed where the existing structure proposed for protection was granted an exemption pursuant to Section 16.10.070(h)2.*

*(ii) seawalls, specifically, shall only be considered where there is a significant threat to an existing structure and both adjacent parcels are already similarly protected.*

*(iii) application for shoreline protective structures shall include a thorough analysis of all reasonable alternatives to such structures, including but not limited to relocation or partial removal of the threatened structure, protection of only the upper bluff or the area immediately adjacent to the threatened structure, beach nourishment, and vertical walls. Structural protection measures on the bluff and beach shall only be permitted where non-structural measures, such as building relocating the structure or changing the design, are infeasible from an engineering standpoint or not economically viable.*

*(iv) shoreline protection structures shall be placed as close as possible to the development or structure requiring protection.*

*(v) shoreline protection structures shall not reduce or restrict public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, increase erosion on adjacent property, create a significant visual intrusion, or cause harmful impacts to wildlife or fish habitat, archaeological or paleontologic resources.*

*Shoreline protection structures shall minimize visual impact by employing materials that blend with the color of natural materials in the area.*

*(vi) all protection structures shall meet approved engineering standards as determined through environmental review.*

*(vii) all shoreline protection structures shall include a permanent, County approved, monitoring and maintenance program.*

*(viii) Applications for shoreline protection structures shall include a construction and staging plan that minimizes disturbance to the beach, specifies the access and staging areas, and includes a construction schedule that limits presence on the beach, as much as possible, to periods of low visitor demand. The plan for repair projects shall include recovery of rock and other material that has been dislodged onto the beach.*

*(ix) All other required local, state and federal permits shall be obtained.*

These policies generally allow for shoreline protection "where necessary to protect existing structures from a significant threat." Such structural protection is only allowable when non-structural measures are infeasible, and when such protection does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. On the whole, these LCP policies recognize that structural shoreline protection measures have negative resource impacts and are to be utilized sparingly – and only when it can be demonstrated that such measures are warranted and appropriately mitigated.

## 2. County-Approved Project

The County-approved project consists of a concrete-faced shoreline protective structure that would be installed in 2 phases: phase one involves the immediate installation of an approximately 80 linear feet and 40 foot deep drilled pier wall system in the bluff; phase 2, to commence when the drilled piers are exposed in the bluff face in the future, would involve facing the wall system with textured concrete (see County-approved staff report, findings and conditions in exhibit C, and plans in exhibit B). The entire project takes place within a coastal bluff area subject to ongoing coastal processes (including erosion, wave attack, landsliding, etc.). The end-result of the County approval would be a concrete-faced wall exposed to the ocean. As a result, the drilled pier wall system approved would be "placed in an area where coastal processes operate" and constitutes a "shoreline protective structure" for LCP purposes.

## 3. Consistency with Applicable Policies

### Defining the existing structure

The LCP allows installation of shoreline protection structures to protect existing structures, vacant lots which through lack of protection threaten adjacent development, public works, public beaches, or coastal dependent uses. The subject application involves the protection of an "existing structure" as opposed to

the other allowed categories.[3] For the purposes of the analysis that follows, it is critical to understand what constitutes the "existing structure" under the LCP. The Commission has generally interpreted LCP and Coastal Act policies to allow shoreline protection only for existing principal structures. The Commission must always consider the specifics of each individual project, but has found that accessory structures (such as patios, decks, gazebos, stairways, etc.) are not required to be protected or can be protected from erosion by relocation or other means that do not involve shoreline armoring. In this case, the subject blufftop site is developed with a two-story residence that the County indicates was constructed at least 30 years ago[4] (i.e., prior to Coastal Act and Proposition 20 coastal permitting requirements) fronted by a deck on the seaward side of the residence. Consistent with the interpretation that only principal structures are eligible for shoreline armoring, the "existing structure" against which the LCP shoreline structure policies must be applied in this case is the existing residence itself (and not the deck).

### Demonstration of significant threat

The LCP only allows for shoreline protection structures "where necessary to protect existing structures from a significant threat." The LCP does not define "significant threat." In similar Santa Cruz County cases,[5] and in general, the Commission has interpreted "significant threat" and/or "imminent danger" to mean that a structure would be imperiled in the next two or three storm cycles (generally, the next few years).

In this case, the LCP-required significant threat has not been demonstrated.

The existing residential structure is located roughly 24 feet from the blufftop's edge at its closest point (i.e., the residence's setback from the bluff edge ranges from between 24 and 41 feet due to the bluff edge configuration and the unusually shaped property and residence here). The roughly 40 foot tall bluff is comprised of roughly 16 feet of nearly vertically sloped Purisma Formation bedrock on an elevated shore platform (i.e., a bedrock platform that extends above the beach sands and out from the bluffs towards the Bay) overlain by marine terrace deposits with a slope of roughly 50 degrees. There are a series of small failing wooden retaining walls within the topmost portion of the bluff.[6] Although many parcels in the general area are armored, the subject bluffs are not otherwise armored, and the bluffs immediately up and downcoast of the subject property are not currently armored.

The Applicant's consulting engineering geologist identifies a 0.4 foot per year long-term erosion rate,

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3 And not 'vacant lots, public works, public beaches, or coastal dependent uses.'

4 The County's approval is unclear on this point. The County staff report refers to the residence being 30 years old while the County findings refer to the residence being 45 years old.

5 For example, most recently in the Live Oak beach area, appeal A-3-SCO-99-056 (Filizetti-Hooper) in which a revetment installed without benefit of a permit was denied by the Commission in June of 2000. Note that the revetment in that case has since been removed and the beach and bluff restored to their pre-revetment installation condition.

6 It is unclear as to when these small upper bluff and blufftop retaining walls were constructed. The Commission has been unable to locate a County or Coastal Commission coastal permit authorization for these structures in Commission files. Additional research on this topic is underway by Commission enforcement staff as of the date of this staff report.

based on past steady and episodic erosion processes, for this site.[7] This site-specific rate is lower than rates that have typically been identified along Opal Cliffs (where the consulting engineering geologist reports retreat rates between 0.6 feet per year and 1 foot per year elsewhere along Opal Cliffs). This lower rate of erosion relative to the rest of Opal Cliffs appears to be at least partially due to the protection offered the property by the natural "armor" represented by the elevated bedrock shore platform and lower bluff.[8] Based on the provided information on long-term erosion, it could be about 60 years at the identified long-term erosion rate before the bluff retreats to the portion of the house foundation that is closest to the bluff.

The long-term erosion rate includes past episodic as well as steady erosion for this site. Although bluff erosion is episodic in nature, and an erosion event may result in a sudden loss of a portion of the bluff greater than that predicted on the basis of the long-term erosion rate (for example, were a one-foot chunk of bluff to be removed instantaneously in one major storm event), such episodic events are included in the long term rate, resulting in an average rate over time. As a result, the actual steady, day-to-day erosion rate is less than the long-term rate. In other words, the identified long-term erosion rate includes both types of erosion based on historical evidence that in this case goes back nearly 150 years. Thus, an argument that the residence is actually more threatened than the long-term rate would indicate, because of the possibility of an episodic erosion event, misses the point of what a long-term erosion rate calculates, and is flawed. While long-term rates are notoriously difficult to accurately assess, they are an important piece of evidence. This is particularly true when, as is the case here, the rate is based upon methodical evaluation of data collected over a very long period of time (in this case, roughly 150 years of data).

The Applicant's consulting engineering geologist also indicates that, even with little or no retreat of the lower bluff, the upper terrace deposits would be expected to lay back eventually to an equilibrium slope (sometime referred to as an "angle of repose" although this term does not strictly apply to cohesive materials such as the terrace deposits) at a roughly 1.5:1 slope gradient. Such an equilibrium slope would place the bluff edge roughly 13 feet from the residence (and roughly 5 feet from the deck). Of course, depending upon the length of time it takes for this process to be complete, some amount of lower bluff retreat would also be expected, and thus the remaining bluff setback would be somewhat less. The Commission's staff geologist notes, however, that the "equilibrium angle" of a coastal bluff is a complex interplay between marine erosion processes at the toe of the bluff and surficial and groundwater processes in the upper bluff. Given continued marine erosion at the base of the bluff, the upper bluff will never be allowed to evolve to an "angle of repose" as the Applicant's consultants suggest. Because bluff erosion is not a steady process, the bluff will tend to vacillate between oversteepened and understeepened conditions – the former will be "corrected" by episodic failure; the latter will be

[7] The consulting engineering geologist, Rogers Johnson, based the erosion rate on the evaluation of maps from as early as 1853, aerial photographs from as early as 1948, and field observations and previous reports dating back to 1985.

[8] It should be noted that Opal Cliffs has long been recognized as an area within Santa Cruz County that has exhibited a high rate of bluff retreat, particularly since the time the Santa Cruz Harbor was installed upcoast of Opal Cliffs in the 1960s (and because the direction of offshore littoral drift is roughly from up to down coast at this location). Even the 0.4 feet per year site-specific rate is considered a moderate to moderately high rate compared to what has been reported elsewhere in the state.

"corrected" by continued marine erosion at the toe of the bluff. But as long as marine erosion continues, the upper bluff will not be allowed to flatten to a lower equilibrium angle akin to the angle of repose. This would only be expected over the long term if the marine erosion at the toe of the bluff were to cease; if, for example, it was armored and thus fixed relative to the upper bluff terrace deposits. The continued retreat at the base of the bluff will necessarily prevent the upper bluff from ever achieving that equilibrium angle. So the argument that the upper top of slope will retreat more than the lower bluff, placing the structure at greater risk than implied by the long-term average bluff retreat rate, is not valid unless marine erosion is halted by, for example, the construction of a seawall.

In addition to gradual, albeit episodic, bluff retreat, coastal bluffs are subject to landslides, which have the capacity to place structures on blufftops at risk. Measuring the degree of threat at this site necessitates evaluating the stability of the bluff materials themselves and their ability to resist failure. A landslide occurs because a number of factors come together; these include the overall geometry of the hillside (or bluff), decreases in the effective normal stress at depth caused by increased water in the slope (buoyancy forces); and the strength of the rocks. Landslides on coastal bluffs occur at least partly because marine erosion continually undermines the toe of the bluff, creating an unsupported geometry that is prone to landsliding. The risk of landslide can be quantified, to some extent, by taking the forces resisting a landslide (principally the strength of the rocks along a potential slide plane) and dividing them by the forces driving a landslide (principally the weight of the rocks as projected onto the potential slide plane). If the quotient, called the factor of safety, is 1.0, failure is imminent. The factor of safety should never, in theory, be below 1.0, as a slide would have already occurred. Factors of safety greater than 1.0 lead to increasing confidence that the bluff is safe from failure.

Slope stability can be evaluated quantitatively by a "slope stability analysis." In practice, hundreds of potential slide planes are typically evaluated. The one with the lowest factor of safety is the one on which failure will occur. So the potential slide plane with the minimum factor of safety is the appropriate one to design for. If one steps back far enough from the edge of the bluff, potential slide planes intersecting the top of the bluff generally will have higher and higher factors of safety. A factor of safety of greater than or equal to 1.5 is the industry standard for new development to be "safe" from a landslide. During an earthquake, additional forces act on the bluff, and a landslide is more likely. To test for the stability during an earthquake, a "pseudostatic" slope stability analysis can be performed. This analysis is rather crude, but the standard methodology is to apply a "seismic coefficient" of 15% of the force of gravity (0.15g), the force of which is added to the forces driving the landslide. The standard for new development in California is to assure a minimum factor of safety greater than or equal to 1.1 in the pseudostatic case.

In this case, the Applicant's consulting geotechnical engineers identify a factor of safety greater than 1.5 at this location with a failure plane well seaward of the existing residence; the factor of safety also was found to be greater than 1.1 in the pseudostatic case (using a seismic coefficient of 0.15).[9] All else being

[9] Haro, Kasunich and Associates (October 2000). Note that it is only by applying an unrealistically high seismic coefficient of 0.23 that an unstable situation (factor of safety near 1.0) is shown. Such a high seismic coefficient is not justified in this type of slope stability analysis.

equal, such a high factor of safety would indicate that the site is generally suitable for development – certainly not in imminent threat from land sliding, such as might necessitate armoring. This is corroborated by the consulting engineering geologist who indicates that seismic failure has not significantly altered long-term retreat in this area and concludes that landslide "does not appear to be a probable mode of [bluff] failure" at this location and "has not contributed to recent cliff retreat."

In any case, the Applicant's consulting engineering geologist does not quantify the existing threat to the residence, instead concluding that the proposed wall would "help prevent further loss of the bluff top on the property." Likewise, the consulting geotechnical engineers detail "improving blufftop stability at the Adams residence" by installing the proposed project, but do not clearly demonstrate a significant threat.[10] The geotechnical reports are more geared towards the parameters of the proposed wall and enhancing blufftop stability than they are concerned with justifying the need for armoring in the first place and/or demonstrating a need to protect endangered residential structures.

In sum, while the County indicated that "within the next 15 to 20 years, if not sooner, the home will be threatened by the retreat of the coastal bluff," and asserted that this demonstrated the LCP-required "significant threat," the facts of this case indicate otherwise.

First, 15 or 20 years is a much longer term of threat than that that has thus far been interpreted by the Commission as "significant" for Santa Cruz County and the California coastline. The Commission has generally used 'the next few years' as the appropriate time frame for assessing danger. This time frame would appear to be a conservative standard for this location given the frequency of major storm events in the Monterey Bay documented to be roughly one every 1.5 years, and the frequency of such storms in the Bay that are directed at this location as roughly one every 5.3 years.[11] Further, the geotechnical reports for the project do not describe a "15 or 20 year" time frame in relation to danger to the existing residence. The only such "15 or 20 year" reference in the geotechnical reports is to the observation that the proposed drilled pier shotcrete wall would itself require a toe shoreline protective structure in roughly 22 years based upon the established long-term erosion rate for the site.

More importantly, the geotechnical evidence does not indicate that the existing structure here is significantly threatened. The residence is now 24 to 41 feet from the bluff edge. At the identified rate of erosion, the residence would still be expected to be set back, at its closest point, about 20 feet from the blufftop's edge at the identified rate of bluff retreat for about ten years. It could be several decades before the residence is actually threatened by erosion, and about 60 years at this rate until the blufftop's

[10] Haro, Kasunich & Associates, dated October 2000.

[11] The Applicant's consulting engineering geologist describes both the type and number of storms that have affected the subject property historically. By using Monterey Bay area storm activity and impact data going back to 1910, it was estimated that a major storm (i.e., one including "either high seas, strong winds, and/or damage to at least some portion of the Monterey Bay region") has occurred in the Monterey Bay area every 1.5 years on average. The northern half of the Monterey Bay (wherein the subject property is located) has incurred more damage from storms arriving from the west or southwest which pass primarily over deep water on their way to the shoreline and thus lose little of their energy in the process. These west/southwest storms were estimated to have struck the area every 5.3 years on average.

edge reached the residence itself.[12] The terrace deposits would be expected to lay back over a period of time in such a way as to maintain a blufftop setback for the residence of over 10 feet at their expected stable equilibrium angle. The high factor of safety generated by the slope stability analysis indicates that the bluff is not in imminent threat from landsliding. So although the residence is relatively near the blufftop's edge and would not be permitted today with such a setback (because the LCP now requires a minimum 100 year setback), the facts do not show a significant threat. There are certainly erosion scenarios that would threaten the residence at some point in the more long-term future, but it does not appear to be at risk within the next several years. As a result, the County-approved project raises a substantial LCP conformance issue.

Alternatives to shoreline armoring

The LCP requires a "thorough analysis of all reasonable alternatives, including but not limited to, relocation or partial removal of the threatened structure" when shoreline armoring is proposed. Ultimately, the LCP only allows for shoreline armoring measures "where non-structural measures are infeasible from an engineering standpoint or not economically viable." In this case, the County concluded that the proposed project "is the least impactive alternative which allows the continued occupancy of the home." There are several problems with this conclusion. First, there does not appear to be any evidence in the administrative record that indicates that the home is unsafe to occupy, or would be unsafe to occupy in the near term future. Certainly the geotechnical reports do not conclude as much.

Second, the County evaluated four alternatives to the proposed project: shotcrete of the bluff, moving the residence, biotechnical treatment, and drainage control. The shotcrete and relocation options are readily dismissed. Shotcrete of the bluff is simply an alternative form of armoring as opposed to an alternative method for addressing any identified problems. In fact, the County-approved project would eventually result in a shotcreted bluff at this location as approved (i.e., phase 2 of the approval). The intent of the LCP policy is to review possible non-armoring alternatives. As such, shotcrete's relevance as an alternative is limited. Relocation of the house on the subject lot is infeasible because it is basically built to property lines at East Cliff Drive and thus there is no room to move it inland. The only relocation option would be partial removal of threatened elements (were any conclusively shown to be threatened), but this option was not evaluated.

However, the County's elimination of biotechnical treatment and drainage controls bear more discussion. The County dismissed biotechnical controls as infeasible asserting that "the erosion is occurring in blocks and topples in a manner that is unsuitable for biotechnical treatment." There is little evidence in the administrative record showing that this manner of erosion is occurring. On the contrary, the consulting engineering geologist indicates recent retreat at the site, and indicates that, if left unprotected the terrace deposits would lay back to a 1.5:1 stable angle of repose. The current terrace deposit slope is roughly 1:1. Biotechnical treatment (i.e., planting of long rooted native plants to help

[12] Of course, the foundation would be compromised sometime before 60 years. Note for reference, however, that at the identified rate of erosion, there would remain a 10 foot bluff setback even after 35 years (see exhibit E). Again, as previously indicated, the identified rate of erosion would be expected to be more accurate over longer periods of time inasmuch as the rate implicitly includes episodic events of rapid bluff retreat.

hold together the upper bluff materials) would appear a reasonable alternative on such slopes.

As to drainage controls, the County approval indicates that drainage control is part of the project as proposed but that (1) subsurface erosion control is infeasible; and that (2) neither the engineering geologist nor engineer "proposes that drainage control alone is adequate to secure the bluff." There is little evidence in the administrative record implying that subsurface drainage or erosion is even a problem, let alone any indication of the feasibility of addressing it were it so identified. As to drainage control as its own alternative, the geotechnical reports do not evaluate such an option of itself. As a result, while the statement is correct that the consulting engineers have not proposed drainage controls alone as an option to address stability concerns here, that is because they were not asked to evaluate such an option, and not because they have indicated that such measures would be infeasible of themselves. In any case, the consulting engineering geologist concludes that "the control of runoff is essential for control of erosion" at this site and recommends that all drainage be collected and directed to the inland storm drain system. These drainage controls could include or be supplemented by replacing impermeable pavement with permeable concrete, or open paving stone; using and maintaining gutters and downspouts; undertaking some slight recontouring or swales to capture and control rain landing on the site; and planting a non-irrigated vegetative buffer at the bluff edge.

Finally, it should be noted that the alternative of plantings and bluff drainage controls (in some combination) is not necessarily meant to be considered an equal alternative to a seawall or other more major form of bluff altering armor. In fact, they are not generally seen as the ultimate "fix" or as a replacement for a "hard" armoring project such as that proposed. Rather, these types of "soft" alternatives can serve to radically extend the design life of setbacks by increasing bluff stability and slowing erosion. Thus, they must be understood as alternatives that can allow for natural processes to continue while simultaneously providing improved stability to the bluff. Given the active forces of erosion taking place unabated along the unarmored California coast, erosion will eventually (over the long-term) result in bluff retreat. If the historic trends of coastal processes continue in this area, bluff retreat will eventually threaten the stability of this structure. At that point, plantings and bluff drainage controls may not be adequate to address the erosion problem of themselves (particularly if they have already been implemented previously and their effect on bluff stability already factored into the analysis), and other alternatives could become more feasible (including wholesale relocation out of danger and even armoring of the coast). That is not to discount the effectiveness or relevance of these types of "soft" measures in this or any other case, but to understand their purpose and potential to address identified threat; particularly where the degree of threat is not proven significant as in the subject case.

In sum, it appears that, at a minimum, the alternatives considered in the County approval did not adequately analyze non-structural measures as an alternative to shoreline armoring at this site. Non-structural measures have certainly not been demonstrated to be "infeasible from an engineering standpoint or not economically viable." Such alternatives are particularly relevant in this case since the degree of threat has not been shown to be significant. The facts of the case appear to indicate that some combination of biotechnical treatment of the upper bluff terrace deposits combined with drainage

improvement on the blufftop itself could serve to stabilize the bluff here. When combined with the fact that the bluff has been eroding at a fairly gentle pace historically, dismissal of such alternatives is contrary to LCP shoreline structure policy direction. As a result, the County-approved project raises a second substantial LCP conformance issue.

#### Location of proposed armoring

If it were conclusively proven that there was a significant threat here, and if non-armoring alternatives were conclusively shown to be infeasible, the LCP requires that such structures "be placed as close as possible to the development or structure requiring protection." Even if these first two conditions were met in this case (which they aren't, as detailed above), the County-approved structure would be placed well away from the residence (roughly a minimum of 20 feet) near the bluff's edge, leaving approximately 3 feet of bluff between the structure and the bluff's edge. Such placement, irregardless as to the type of structure, is not as close as possible to the structure proposed for protection. In fact, it would be roughly 20 to 40 feet from the structure being protected. Placing any allowable protective work as close as possible to the existing structure being protected would allow for ongoing natural processes to occur within the bluff here. The County-approved project does not achieve this and therefore raises a third substantial LCP conformance issue.

#### Future armoring required

If the County-approved project were to be installed, the consulting engineers indicate that a separate seawall, with its own attendant impacts, would need to be installed at this location in roughly 20 years to protect the County-approved shoreline protective structure. Not only is it unlikely that the LCP or the Coastal Act would allow for such shoreline armoring to protect other shoreline armoring, but the LCP requires a minimum of 100 years of stability without reliance on future shoreline protective structures (including, but not limited to, LUP Policy 6.2.12, and IP Sections 16.10.070(g) and 16.10.070(h)(1)(i)). The County-approved structure in this case would appear to establish a scenario where additional armoring would be necessary within 22 years. This does not meet the LCP's minimum 100 year threshold. As a result, the County-approved project raises a fourth substantial LCP conformance issue.

### 4. Allowing Shoreline Armoring Conclusion

The LCP requires a significant threat be demonstrated before any form of shoreline protection be considered. The LCP requires an evaluation of alternatives to hard protective structures such as that proposed, and only allows further consideration of hard armoring if the alternatives are proven infeasible. In tandem, the intent is to limit the installation of shoreline armoring (because of its negative impacts on coastal resources) to the finite set of cases where it is truly warranted. In this case, the LCP-required significant threat has not been demonstrated, and non-structural alternatives have not been shown to be infeasible. Even were these conditions conclusively demonstrated, the approved location is not as near to the residence as possible so as to allow for natural bluff retreat processes to continue. The structure approved would require separate toe of bluff armoring of its own in roughly 22 years – well in advance of the LCP's established minimum stability threshold of 100 years. As a result, the County-approved project raises a number of substantial LCP conformance issues.

## B. Avoiding, Minimizing, & Mitigating Shoreline Armoring Impacts

### 1. Applicable Policies

#### LCP Policies

If a hard protective structure is proven necessary and appropriately sited, the LCP only allows such structural protection if it minimizes landform alteration, minimizes visual intrusion, and when it does not reduce public beach access, adversely affect shoreline processes and sand supply, adversely impact recreational resources, or negatively impact habitat. In addition to the LCP's shoreline protective structure specific policies as cited previously, additional LCP policies are relevant to this point, including, but not limited to LUP Objectives 5.10.a and 5.10.b, LUP Policy 5.10.7, LUP Chapter 7, and IP Section 13.20.130. For example, the LCP states:

> ***Objective 5.10.a Protection of Visual Resource Areas.*** *To identify, protect, and restore the aesthetic values of visual resources.*
>
> ***Objective 5.10.b New Development in Visual Resource Areas.*** *To ensure that new development is appropriately designed and constructed to minimal to no adverse impact upon identified visual resources.*
>
> ***LUP Policy 5.10.2 Development Within Visual Resource Areas.*** *Recognize that visual resources of Santa Cruz County possess diverse characteristics…. Require projects to be evaluated against the context of their unique environment and regulate structure height, setbacks and design to protect these resources consistent with the objectives and policies of this section.…*
>
> ***LUP Policy 5.10.3 Protection of Public Vistas.*** *Protect significant public vistas…from all publicly used roads and vistas points by minimizing disruption of landform and aesthetic character caused by grading operations,… inappropriate landscaping and structure design.*
>
> ***LUP Policy 5.10.6 Preserving Ocean Vistas.*** *Where public ocean vistas exist, require that these vistas be retained to the maximum extent possible as a condition of approval for any new development.*
>
> ***LUP Policy 5.10.7 Open Beaches and Blufftops.*** *Prohibit placement of new permanent structures which would be visible from a public beach, except where allowed on existing lots of record, or for shoreline protection and for public beach access. Use the following criteria for allowed structures:… (b) Require shoreline protection and access structures to use natural materials and finishes to blend with the character of the area and integrate with the landform.*
>
> ***LUP Policy 7.7.1 Coastal Vistas.*** *Encourage pedestrian enjoyment of ocean areas and beaches by the development of vista points and overlooks with benches and railings, and facilities for pedestrian access to the beaches…*
>
> ***IP Section 13.20.130(b)(1) Entire Coastal Zone, Visual Compatibility.*** *The following Design*

*Criteria shall apply to projects site anywhere in the coastal zone: All new development shall be sited, designed and landscaped to be visually compatible and integrated with the character of surrounding neighborhoods or areas.*

***IP Section 13.20.130(d)(1) Beach Viewsheds, Blufftop Development.*** *The following Design Criteria shall apply to all projects located on blufftops and visible from beaches: Blufftop development and landscaping…in rural areas shall be set back from the bluff edge a sufficient distance to be out of sight from the shoreline, or if infeasible, not visually intrusive.*

***IP Section 13.20.130(d)(2) Beach Viewsheds, Beaches.*** *The scenic integrity of open beaches shall be maintained….*

Furthermore, Coastal Act Section 30604(c) requires that every coastal development permit issued for any development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and public recreation policies of [Coastal Act] Chapter 3." Because this project is located seaward of the first through public road (East Cliff Drive/Opal Cliff Drive), for public access and recreation issues the standard of review is not only the certified LCP but also the access and recreation policies of the Coastal Act. In particular:

***Section 30210*** *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

***Section 30211.*** *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*

***Section 30213.*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.…*

***Section 30214(a).*** *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case…*

***Section 30221.*** *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*

***Section 30223.*** *Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.*

***Section 30240(b).*** *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

***Section 30251.*** *The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.*

## 2. County-Approved Project

As described above, the County-approved a project in two phases allowing for an exposed shotcrete wall after the second phase is complete (see County-approved staff report, findings, and conditions in exhibit C, and project plans in exhibit B).

## 3. Consistency with Applicable Policies

Were the other tests otherwise met to allow for armoring at this location (which they are not, as described above), the LCP has multiple overlapping policies meant to result in appropriate design of allowable armoring projects to minimize and mitigate impacts to natural landforms, public viewsheds, and public access and recreational resources (including beach, offshore surfing, and blufftop access). These policies are complemented by Coastal Act access and recreation protective policies that likewise apply here.

In this case, even were an armoring structure warranted, it does not appear that the approved project has adequately addressed such policies:

- substantial landform alteration has been approved, ultimately to result in a concrete bluff where currently exists a natural bluff landform;[13]

- visual intrusion is guaranteed for which the County-required mitigation (the project was conditioned for a future "visual treatment plan" designed to ensure that the concrete is adequately colorized, mottled and textured to blend into the adjacent natural bluffs) on the future concrete facing may

[13] In fact, the installation of the drilled piers could possibly destabilize the bluff seaward of the piers (due to the construction process and its attendant vibrations, and the location of the piers so close to the bluff edge as opposed to closer to the residence as LCP required) potentially leading to the premature loss of these bluff materials and the daylighting of the drilled-piers even sooner than the long-term erosion rate might otherwise dictate. In other words, the natural landform seaward of the project (intended to remain for some period of time until daylighting in the future – a form of built-in mitigation) is likely to be lost faster than it would be otherwise in the no project alternative or a project alternative where the drilled piers were installed next to the residence itself.

prove inadequate to conceal;

- the project includes a 3½ foot railing structure atop the proposed wall for which there were no elevations or details provided nor analyzed in the County approval. Such additional development right at the edge of the bluff could degrade the viewshed even further, particularly if it were to be a large solid structure of some sort;

- the contribution of bluff materials into the natural shoreline sand supply system at this location will eventually be halted and the County-approval includes no mitigation for this impact;

- the County approval does not analyze the potential for the project to negatively alter beach access and offshore surf access and thus, any necessary mitigation for such negative impacts is also missing;

- there is no analysis of impacts, if any, to marine resources of the Monterey Bay National Marine Sanctuary offshore.

- the subject site is immediately adjacent to the County's blufftop coastal accessway at the "Hook" and the County's approval is silent on potential impacts from the proposed project to ongoing and future blufftop recreational use of the accessway.

The record of analysis of these public access, recreation, viewshed, landform protection, and (potentially) offshore habitat issues (if a protective structure were to be proven necessary and appropriately sited) is inadequate. As a result, the County-approved project raises a substantial LCP conformance issue.

## C. Substantial Issue Conclusion

The LCP recognizes that shoreline protective structures designed to forestall coastal erosion can adversely alter natural shoreline processes and, as such, have a variety of negative impacts on coastal resources including adverse affects on sand supply, public access, coastal views, natural landforms, and overall shoreline beach dynamics on and off site, ultimately resulting in the loss of beach. As a result, exacting criteria must be met under the LCP, and the Coastal Act, before such structures can be considered or approved, and the LCP requires 100 years of stability (without reliance on shoreline protective structures) for development.

The County's approval is not consistent with the LCP in that the LCP-required significant threat has not been clearly demonstrated. The County's findings indicate that the existing residential structure will be threatened by bluff retreat in the next 15 or 20 years. However, the geotechnical evidence indicates that the bluff itself is relatively stable and that it will be much longer than that until the residence is significantly threatened; at the long term erosion rate established, the foundation of the residence would not be reached by bluff retreat for another 60 years. Even if a significant threat to an existing structure were proven, the County's approval has not thoroughly evaluated non-structural alternatives that could lessen the negative effect of the project approved, and the County's approval has not sited the proposed

structure as close as possible to the structure to be protected. Public access, public recreation, views, landform alteration, and potentially offshore habitat issues have been inadequately analyzed and consistency with protective LCP and Coastal Act policies is not assured. Moreover, the County approved project would require its own shoreline armoring in roughly 20 years though the LCP requires 100 years of stability.

Therefore, the Commission finds that a substantial issue exists with respect to this project's conformance with the certified Santa Cruz County Local Coastal Program and takes jurisdiction over the coastal development permit for this project.

# 6. Coastal Development Permit Findings

By finding a substantial issue in terms of the project's conformance with the certified LCP, the Commission takes jurisdiction over the CDP for the proposed project. The standard of review for this CDP determination is the County LCP and the Coastal Act access and recreation policies.

## A. Consistency with Applicable Policies

The substantial issue findings above are incorporated directly herein by reference. As detailed in these findings, the proposed project raises fundamental LCP conformance issues that cannot be easily rectified by conditions of approval placed on a permit. The LCP-required significant threat has not been demonstrated. The LCP-required infeasibility of non-armoring alternatives has not been demonstrated. The LCP-required shoreline structure placement is not as close as possible to the residence proposed for protection. The LCP-required 100 year stability test is not met. The LCP- and Coastal Act-required prevention of, and (for any impacts that are unavoidable) mitigation for, impacts to beach and offshore recreational access, public views, and landform alteration has not been assured. In sum, without a clear demonstration of significant threat, and in light of the negative resource impacts from armoring that are well known to the Commission, armoring cannot be found LCP and Coastal Act consistent at this location. Therefore, the Commission finds that the proposed project is inconsistent with the certified LCP and the Coastal Act and is therefore denied.

## B. California Environmental Quality Act (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The County, acting as the lead CEQA agency, circulated a proposed negative declaration under CEQA

for the proposed project in July of 2001. Prior to that time, in early coordination with County staff, Commission staff had already provided feedback and recommendations on the project to the County and the Applicant describing the same types of LCP and Coastal Act inconsistencies detailed in this report (see exhibit G). Although County staff rebutted Commission staff comments, the project itself was not altered in light of them and, ultimately, the County certified the CEQA negative declaration as part of the project approval in October 2001.

In any case, the Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. This report has discussed the relevant coastal resource issues with the proposal. All public comments received to date have been addressed in the findings above. All above Coastal Act findings are incorporated herein in their entirety by reference. As detailed in the findings above, there are less environmentally damaging feasible alternatives to the proposed project (including the no project alternative), and there are a range of poorly analyzed (and unmitigated) impacts associated with the proposed project. Most importantly, the geotechnical information available shows that the there is not an existing structure that is significantly threatened at this location that would warrant the proposed shoreline protection and the range of negative coastal resource impacts associated with it.

As such, there are additional feasible alternatives and feasible mitigation measures available which would substantially lessen any significant adverse environmental effects which approval of the proposed project would have on the environment within the meaning of CEQA. Thus, the proposed project will result in significant environmental effects for which feasible mitigation measures have not been employed inconsistent with CEQA Section 21080.5(d)(2)(A). Therefore, the project is not approvable under CEQA and is denied.

## C. Future Options

The Commission again notes that this Applicant has options that should be explored through any and all proper County permitting channels. In particular, there appear to be a range of potential drainage and erosion control alternative mechanisms that could be installed within the upper bluff to enhance bluff stability. Even simply collecting the blufftop drainage and directing it away from the bluff edge (and to the storm drain system in East Cliff Drive/Opal Cliff Drive) should help both stabilize the upper bluff and correct any sheet flow erosion problems. Such measures could be combined with even minimal planting of native (and long-rooted) plants on the upper bluff as a complementary measure. These type of measures would, of course, need to be detailed and developed by the Applicant's consulting engineers and geologists before they could be considered for LCP and/or Coastal Act conformance.

In addition, the Commission notes that the County has begun preliminary efforts toward developing a regional solution to the issue of shoreline armoring for the Opal Cliffs area. As the Commission currently understands it, the regional solution would focus on the removal of the rubble and rock revetments that block much of the beach access in this area between 41st Avenue and the City of Capitola, and would develop measures to sculpt and camouflage any armoring that is allowable under

the Coastal Act and LCP in such a way as to mimic the natural bluff topography and vegetation. Options for building in pedestrian platforms in permitted armoring that allow for lateral access at even higher tides would also be evaluated. It appears at this time that the vehicle for such a regional solution would be a specific plan for Opal Cliffs that would be an amendment into the LCP. The specific plan approach has the benefit of allowing decision makers at the County and Commission levels to develop appropriate regional planning standards based upon the unique regional geology and existing situation of Opal Cliffs rather than being limited by the piecemeal approach of individual permit applications. A specific plan also has the added advantage of providing an increased level of certainty in the permitting process since individual applications would then simply need to fit within the regional guidelines so established and agreed upon.[14]

The Commission is supportive of the development of such a specific plan for Opal Cliffs provided such a plan is premised within the context of avoiding armoring to the absolute extent feasible (as discussed in this staff report), consistent with the Coastal Act, and ensuring that the public is adequately compensated for any burden borne over the long term by armoring that fully meets the applicable LCP and Coastal Act policy tests.[15] Further, if such a regional planning process proves successful for the Opal Cliffs shoreline, then it would seem to make sense for this type of effort to be expanded to encompass other sections of the urbanized Santa Cruz County coastline.

Absent such specific planning and vision for the County's coast, individual projects must continue to be evaluated against the broader LCP and Coastal Act policies. Although the County and Commission can do their best to guard against piece-meal projects, regional inconsistency, and cumulative impacts due to shoreline armoring, these objectives may prove evasive if they are only addressed in the context of processing individual project applications. Approaching coastal erosion problems more broadly within a specific geomorphically defined region has far more likelihood of achieving sound resource management goals.

Ultimately, when the back beach is fixed due to armoring, and the shoreline continues to erode, and the sea level continues to rise, the end result is that Santa Cruz County beaches may eventually no longer exist. While this is clearly an issue that needs local debate and deliberation, the coast here is a resource and a treasure for all Californians as well as visitors to the state and thus also has a larger than local importance. The Commission welcomes the opportunity to explore a future vision for Santa Cruz

[14] Alternatively, if course, there is the potential for some type of larger project by multiple applicants or through some type of special district and/or County-sponsored arrangement. In either case, planning is completed ahead of any associated permitting and the same level of certainty is provided.

[15] Note that the Commission through the 1995 Monterey Bay ReCAP project, or Regional Cumulative Assessment Project, recommended just such a regional shoreline planning approach for the Monterey Bay area where it was estimated that approximately 25 acres of sandy beach had been covered with shoreline armoring in the study region by 1993, most of that in Santa Cruz County. In fact, the Commission's ReCAP analysis focused on the Opal Cliffs area as a case study to illustrate the coastal resource problems associated with project-by-project review of armoring proposals as opposed to long-term planning. Because property owners along the Opal Cliffs shoreline have generally undertaken bluff armoring individually, there are a vast myriad of armoring types along the bluffs and backbeach along this section of coast. As a result, beach access and aesthetics have been compromised, and the integrity of the armoring is in some cases suspect. Most of Opal Cliffs is currently armored in some way, and much (if not most) of the armoring appears to pre-date the Coastal Act.

County shoreline and beaches with its local partners and encourages the initiation of regional plans to further this important public policy debate and action.